

Research on Highway Engineering Supervision and Project Management

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Abstract: As the main part of China's transportation, highway transportation has promoted China's economic development, and it has been concerned by the society for a long time. However, with the development of highway industry, the traffic volume and burden of highway are increasing day by day, and highway quality problems have appeared frequently, which undoubtedly poses a great threat to the economy and people's lives. Based on this, this paper mainly studies the engineering supervision and project management in highway engineering, and it provides corresponding suggestions.

Keywords: Highway Engineering; Supervision; Management

Introduction

With the rapid development of economy, there are more and more engineering projects, and the quality of highway construction has a decisive influence on the comfort and safety of highway traffic. With the rapid development of society, there are also outstanding problems in the quality supervision of highway project construction. Therefore, it is very important for highway construction to strengthen the management of highway engineering supervision and project management in the supervision process. Although the purpose is same to a certain extent, their contents and forms are quite different. There contents are two independent and interrelated parts, and their joint action has brought about the transformation of highway construction. At the same time, the project supervision of highway engineering is a systematic work to make the work achievements in the process of highway construction better and it is an important way to promote the development of project management. Therefore, from a certain level, project

management in highway construction will be affected by project supervision.

1. The status of highway engineering supervision and engineering projects

Highway construction means huge quantities, high consumption and wide field work scope, so it is usually affected by various factors in the construction process, which brings various difficulties to management. In this case, in order to ensure the quality of highway construction, it is necessary to supervise and manage highway engineering. Engineering supervision is to supervise and manage according to the suggestions of relevant project clients, relevant national policies and corresponding highway construction laws. Generally, in the process of highway supervision, it usually involves the management of capital investment, overall construction quality and construction progress. The construction quality and construction progress should be

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referenced according to the signed contract, which comply with relevant laws and regulations during the construction process. At the same time, it is necessary to do a good job of coordination with various units, so as to ensure the legality and standardization of construction, making the engineering supervision work exert its effect during the whole construction process.

2. Problems in project supervision and project management

At present, there are some problems in engineering supervision. First, technical problems are crucial. With the increasing demand of highway construction, the demand for engineering supervision technology is also expanding, and the strength of supervision technology directly affects the quality, construction period and cost of the whole project. To a certain extent, the quality of supervision work also depends on the level of supervisors, their comprehensive quality, the scale of the whole supervision process, whether the rules and regulations meet the market economy construction and the laws and organizational management methods in the process of project supervision. Secondly, in addition to the technical aspects and the problems of supervision level, there are also deficiencies in the supervision business management of the financial department. In the process of management, the financial department pays so much attention to the economic effect that neglects the improvement of supervision work level, and it fails to invest large funds to train and manage supervision talents, which will lead to the low supervision level and quality. Finally, there are some problems between the project unit and the supervision department. This kind of management problems often directly lead to the supervision staff's great influence on the overall quality and progress of the project. Therefore, the supervision staff will be subject to various restrictions on the overall work and business of the project, which makes the supervision work unable to optimize and develop. The problems in project management are caused by the lack of clear responsibility system and management of some departments, such as the lack of cost quality control and management. Secondly, in the process of project management, the lack of communication between

departments leads to conflicts and divergences.

3. The role of highway engineering supervision in engineering projects

In the aspect of project schedule control, including project design preparation and preparation before construction, schedule control should be done well so that the project can be completed within the specified time and the project management level can be promoted. Secondly, it is necessary to do a good job in project quality control. Before construction, the supervision engineer shall organize the contractors and workers of the construction to carry out training, and the engineer requires them to carry out construction according to the contract and verify various factors affecting the engineering quality. For the quality problems in the construction process, it is necessary to adjust and correct the management with full play to the power of supervision and management. Finally, it is necessary to control the cost of the project. For the construction unit, cost control is a measure to improve the project management level. Good cost control is equivalent to an investment, and it is better to save more investment. Therefore, the supervision department should plan the investment scope and control the cost of each link in the construction process. Two managements refer to contract management and information management. The contract management requirements should be carried out after the project is finalized, and this contract must run through the whole construction process, including the signing and performance of the contract and the termination of the contract. Information management refers to some materials and data or other management work in the construction process of the project. Adopting modern management means, this management processes and manages a large amount of information through current information technology for assistance, so as to improve the supervision project level and innovate the project management level.

4. Highway engineering supervision and project management related analysis

4.1 The difference between highway

engineering supervision and project management

The main differences between highway engineering supervision and project management are as follows: first, the contents of work are different; second, their powers are different. First of all, in terms of work content, project management mainly refers to the decision-making of the whole construction process and the implementation of management in the construction stage, and the connotation of management should involve all aspects of the construction process. General project management represents the management of various jobs that enterprises should do at the construction site. It mainly includes design drawings, project management during construction and overall quality management during road construction. The purpose of management is to provide the direction of construction under the condition of safety and quality of construction work and to carry out management work throughout all of them, so as to improve construction efficiency and quality. The supervision work is mainly to monitor and manage in the process of construction, to understand and inspect the documents and schemes in the early stage of construction, and to make detailed supervision plans according to some design documents and contract documents signed before construction, which mainly participate in the construction process. For example, the configuration of building materials, construction equipment and construction personnel in the construction process should be arranged in a prescriptive and rational way, and the construction quality should always be guaranteed. Second, for different rights, the management of construction projects generally means that the construction units independently exercise their rights and adjust the management rights according to the corresponding actual conditions, such as time and content during the whole construction project. However, engineering supervision only has the right of monitoring and management, so its power will be restricted to a certain extent in the project, and it is not independent in the exercise of power.

4.2 Formulate standardized rules and regulations

In the process of planning and construction of highway engineering projects, in order to effectively

control the construction quality, it is necessary to implement the rules and regulations formulated by enterprises according to the construction requirements, which is conducive to the implementation of engineering supervision work in all construction links. First of all, the relevant enterprises must set up the existing engineering supervision institutions scientifically and reasonably, and at the same time some professional supervision staff must be hired in practice, so as to realize the targeted design of each link of the project and to ensure the orderly development of supervision and management. When designing the basic technical scheme, in order to ensure the effectiveness and pertinence of the scheme, these hired professional staff must effectively deal with the existing deficiencies in the scheme. At the same time, strengthening the effective implementation of supervision work in the construction stage, arranging corresponding staff for different construction links, and putting the responsibility supervision and management mechanism into practice are all necessary. Through this mechanism, the functions of the staff can be reasonably divided. At the same time, the construction quality of different construction links can be effectively controlled.

4.3 Contact of highway engineering supervision project management

In the process of highway construction, from the presentation of the initial design drawing to the completion and then to the maintenance stage of the whole project, it must run through the project supervision and management, both of which serve the highway construction process and improve the overall service quality of the highway. To a certain extent, both of them are indispensable. In fact, as a part of project management, project supervision controls the progress of funds, safety and environmental protection in the whole project, and it mainly supervises and manages the highway to improve the quality service of the whole highway. Next, to a certain extent, the quality and cost of engineering projects are restricted and influenced by engineering supervision, which depends on some information presented in the process of engineering quality management, while engineering supervision is only responsible for controlling and supervising the process, and the degree of such control and supervision is limited, causing little impact on the goal of the whole

project. What's more, project supervision will have a certain impact on the construction progress of the whole project. The development of enterprises and projects is affected by construction supervision. If problems are found in the construction process during the supervision, the construction will be stopped and corrected.

4.4 Improve the contents of quality control and project supervision

With the rapid development of economy, the quality of people's daily life has been significantly improved, and the requirements for the construction of highway engineering projects are getting higher and higher. It is not only necessary to ensure the construction quality of highway engineering projects, but also to effectively control the costs, so as to maximize the economic benefits of related enterprises and to promote enterprises to occupy a favorable position in the fierce market competition environment. In order to achieve this fundamental goal, in the concrete construction of highway engineering projects, it is necessary to ensure the effective implementation of engineering supervision and to improve and optimize the existing quality control management system. At the same time, it is necessary to improve and optimize the supervision content and quality control content of the whole project. Its fundamental purposes are to ensure the comprehensiveness and effectiveness of the project supervision work and to provide an effective guarantee for the construction quality of all links of highway engineering. At present, when analyzing and optimizing the contents of supervision and engineering quality control in China, quantitative evaluation methods are generally used directly. Through the scientific and reasonable application of this evaluation method, it can not only deal with different types of indicators in a more detailed

way, but also effectively implement the indicators and effectively integrate them with the actual construction content. In addition, it is also possible to construct different responsible subject relationships in the construction process of highway engineering projects, which is beneficial to realize the effective association among various construction links. When these standard requirements are determined, they can be effectively combined with the construction site of each link of the enterprise, and the supervision work can be carried out in a targeted manner to ensure the effectiveness of the engineering quantity, so that reasonable judgment can be made in time according to the construction status and effective guarantee can be provided for the construction quality.

5. Conclusion

The overall implementation of highway engineering supervision in China is relatively good at present, but there are still many problems in some links, which need to be improved and optimized in the follow-up construction supervision and management process. On the basis of ensuring that the role of construction supervision can be brought into full play, it provides an effective guarantee for highway construction quality.

References

1. Lin H, Zhu A, Yang X, *et al.* Discussion on the problems faced by highway engineering supervision and their solutions at the present stage (in Chinese). *Value Engineering* 2020; 39(7): 19-20.
2. Qiao W. Research on total quality management measures in highway engineering supervision (in Chinese). *Transpoworld* 2020; (Z2): 162-163.
3. Shi L, Zhou R, Wang X. Research on evaluation system of side station of highway engineering construction supervision (in Chinese). *Urbanism and Architecture* 2020; 17(5): 181-183.